JS 10/29/21
RJA 2/16/22

INITIAL REVIEW ENGINEERING REPORT [redacted]
PMN: 18-0219

Focus Ready Draft 7/19/2018
ENGINEER: Hall \ SL
PV (kg/yr): [redacted]
SUBMITTER: [redacted]

[redacted]

Isocyanate FGEW = [redacted] (Worst case).

OTHER USES: No other uses were found.

MSDS: Yes Label: No

Gen Eqpt: Use only qith adequate ventilation / Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposures to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosive-proof ventilation equipment / Chemical-resistant, impervious gloves complying with an approved standard / Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Where there is a risk of ignition from satic electricity, wear static-proof clothing. For greatest protection from static discharges clothing should include anti-static overalls, boots and gloves / Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. / Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

Respirator: BY spraying: air-fed respirator. By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Health Effects: Flammable [redacted] and vapor / Toxic if inhaled / Harmful if swallowed / May cause allergic or asthma symtoms or breathing difficulties if inhaled / May cause an allergic skin reaction

TLV/PEL:

[redacted]

CRSS (07/09/2018):

[redacted]

S-H20: Reacts g/L @
VP: 1.0E-6 torr @
MW: [redacted] [redacted]<500 [redacted]<1000
Physical State and Misc CRSS Info:
Neat: [redacted] Mfg: Solution: [redacted] PMN material in [redacted] oc/For
Solution: [redacted] PMN material End Use: Destroyed. NAVG MW = [redacted] with [redacted]
< 500 and [redacted] < 1000 by GPC.
Submitted Properties: WS = In [redacted] ty = [redacted] g/cc.
An IR spectrum containing an [redacted] is included with the PMN
submission.
E [redacted] d Properties: BP > 400 °C ([redacted] Polymer); VP < 0.000001 torr
([redacted] polymer)
Isocyanate FGEW = [redacted] (Worst case).
The isocyanate groups are expected to hydrolyze with a half-life of hours
to days, to give the amine-terminated polymer.

Consumer Use: No

SAT (concerns) (07/10/2018):

Related Cases and Misc SAT Info:

No reasonable analogs were found.
Migration to groundwater: ;1 PMN;Hyd Pdt

PBT rating: P3B1T1
Health: 1-2 Dermal, Drinking Water, Inhalation, Other

Eco: 1 No releases to water

OCCUPATIONAL EXPOSURE RATING: [redacted]

NOTES & KEY ASSUMPTIONS:
Occupational exposure and environmental releases were estimated using the 9/30/2013 version of ChemSTEER tool. Input to ChemSTEER tool includes information [redacted] N submission [redacted] s, and the [redacted]. PMN is a [redacted] SAT concerns are for dermal, inhalation, and drinking water. /// Same subm [redacted] Differences: [redacted] did not assess inhalation exp [redacted] n that the PMN was destroyed during [redacted] - not consistent with this IRER). [redacted] was also volatile re inhalation assesments were for both mist and parti [redacted] d not require dermal assessments. Similariti [redacted] ted and inhalation was assessed for [redacted] also assessed an air release from [redacted] (consistent with this IRER).

POLLUTION PREVENTION CONSIDERATIONS:
None.
EXPOSURE-BASED REVIEW: [redacted]

INITIAL REVIEW ENGINEERING REPORT [redacted]

PMN: 18-0219

Manufacturing: [redacted]

Number of Sites/ Location: [redacted]

Days/yr: [redacted]

Basis: Subm sion specifies [redacted], [redacted] k (max), [redacted] hr/bt, [redacted] bt/yr, and [redacted] PMN in product. RAD assesses [redacted] and [redacted] kg/bt. CS calculates [redacted] bt/yr.

[redacted]

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium.

Incineration

Output 2: [redacted] kg/site-day over [redacted] days/yr from [redacted] site

or [redacted] kg/site-yr from [redacted] site or [redacted] kg/yr-all sites

to: [redacted]

from: [redacted]

User-Defined Lo [redacted] itter estimates [redacted]

[redacted]

E TOTAL

[redacted] kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY

Tot. # of workers exposed via assessed routes: [redacted]

Basis:

Inhalation:

negligible, VP < 0.001 torr and generation of respirable PMN not expected at MFG site.

Dermal:

Exposure to [redacted] concentration
High End:
> Potential Dose Rate: [redacted] mg/day over [redacted] days/yr
> Lifetime Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Acute Potential Dose: [redacted] mg/day over [redacted] days/yr
Number of workers (all sites) with dermal exposure: [redacted]
Basis [redacted]; EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

INITIAL REVIEW ENGINEERING REPORT [redacted]

PMN: 18-0219

Processing 1: [redacted]

Number of Sites/ Location: [redacted]

[redacted]

Days/yr: [redacted]

sis: Su ission specif s [redacted] (same as MFG site), [redacted] t (ma [redacted] hr/bt, [redacted] bt/yr, a [redacted] PMN in product. RAD assesses [redacted] and [redacted] kg/bt. CS calculates [redacted] bt/yr.

[redacted]

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium.

Incinerati
High End: [redacted] kg/site-day over [redacted] days/yr from [redacted]
or [redacted] kg/site-yr from [redacted] or [redacted] kg/yr-all sites
to: [redacted]

basis: [redacted] Therefore, RAD assesses using standard model to incineration.

Incineration
Conservative: [redacted] kg/site-day over [redacted] days/yr from [redacted]
or [redacted] kg/site-yr from [redacted] or [redacted] kg/yr-all sites
to: [redacted]
from: [redacted]

basis: [redacted]
Submitter estimates [redacted] kg/bt [redacted] released but does not specify
acti[redacted] is generally consistent with EPA standard model
for [redacted] Submitter states [redacted] Therefore, RAD assesses release to incineration.

E TOTAL
[redacted] kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY
Tot. # of workers exposed via assessed routes: [redacted]
Basis:

Inhalation:

negligible, VP < 0.001 torr and generation of respirable PMN not expected at PROC site.

Dermal:

Exposure to [redacted] concentration
High End:
> Potential Dose Rate: [redacted] mg/day over [redacted] days/yr
> Lifetime Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Acute Potential Dose: [redacted] mg/day over [redacted] days/yr
Number of workers (all sites) with dermal exposure: [redacted]
Basis: [redacted] EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

INITIAL REVIEW ENGINEERING REPORT [redacted]

PMN: 18-0219

Processing 2: [redacted]

Number of Sites/ Location: [redacted]

[redacted]

Days/yr: [redacted]

Basi Submission specifies [redacted], [redacted] kg/b ), [redacted] h t, [redacted] bt/yr, and [redacted] PMN raw material. RAD assesses [redacted] and [redacted] kg/bt. CS calculates [redacted] bt/yr.

[redacted]

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases fr e other sou o the same medi r estimates a total of [redacted] kg PMN/bt [redacted] released to [redacted]. This is less conservative than EPA standard models; therefore, EPA assesses releases using standard models below.

Incinerati
High End: [redacted] kg/site-day over [redacted] days/yr from [redacted]
or [redacted] kg/site-yr from [redacted] or [redacted] kg/yr-all sites
to: Incineration (submission)
[redacted] Therefore, RAD assesses release to incineration.

Incineration
Conservative: [redacted] kg/site-day over [redacted] days/yr from [redacted]
or [redacted] kg/site-yr from [redacted] or [redacted] kg/yr-all sites
to: Incineration (submission)
from: [redacted] Therefore, RAD assesses release to incineration.

TOTAL
[redacted] kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY
Tot. # of workers exposed via assessed routes: [redacted]
Basis:

Inhalation:

negligible, VP < 0.001 torr and generation of respirable PMN not expected at PROC site.

Dermal:

Exposure to [redacted] concentration
High End:
> Potential Dose Rate: [redacted] mg/day over [redacted] days/yr
> Lifetime Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Acute Potential Dose: [redacted] mg/day over [redacted] days/yr
Number of workers (all sites) with dermal exposure: [redacted]
Basis: [redacted]; EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

INITIAL REVIEW ENGINEERING REPORT [redacted]

PMN: 18-0219

Use: [redacted]

Number of Sites/ Location: [redacted]

Days/yr: [redacted]

Basis: Submission est tes [redacted] but gives [redacted] Submission es s [redacted] exposure days/yr. Due to exposure concerns, RAD assesses [redacted] sumes exposure days are equal to operating days. CS calculates [redacted] kg PMN/site-day.

[redacted]

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium. Submission does not estimate releases at use sites but states they provide the following disposal recommendations to customers: the generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. No process water should be released to a POTW or other process sewer. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Therefore, RAD assesses equipment and container releases as likely to incineration or landfill.

Water
Output [redacted] kg/site-day over [redacted] days/yr from [redacted] sites
or [redacted] kg/site-yr from [redacted] sites or [redacted] kg/yr-all sites
to: Water (9.6%), Air (4%), and Landfill (86.4%) (model)
from: [redacted] RAD assesses release using [redacted].

Water
Conservative: [redacted] kg/site-day over [redacted] days/yr from [redacted] sites
or [redacted] kg/site-yr from [redacted] sites or [redacted] kg/yr-all sites
to:
from: [redacted]

Air
Output 2: [redacted] kg/site-day over [redacted] days/yr from [redacted] sites
or [redacted] kg/site-yr from [redacted] sites or [redacted] kg/yr-all sites
to: Water (9.6%), Air (4%), and Landfill (86.4%) (model)
from: [redacted] RAD assesses release using [redacted].

Incinerati Landfill
High End: [redacted] kg/site-day over [redacted] days/yr from [redacted] sites
or [redacted] kg/site-yr from [redacted] sites or [redacted] kg/yr-all sites
to: Likely incineration or landfill (submission)
[redacted] RAD assesses [redacted].

Landfill
Output 2: [redacted] kg/site-day over [redacted] days/yr from [redacted] sites
or [redacted] kg/site-yr from [redacted] sites or [redacted] kg/yr-all sites
to: Water (9.6%), Air (4%), and Landfill (86.4%) (model)
from: [redacted]

[redacted]. RAD assesses release using [redacted].

E TOTAL
[redacted] kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY
Tot. # of workers exposed via assessed routes: [redacted]
Basis:

Inhalation:

Exposure to Mist (non-volatile) (Class I)
What-If:
> Potential Dose Rate: [redacted] mg/day over [redacted] days/yr
> Lifetime Average Daily Dose: [redacted] mg/kg-day over [redacted] days/yr
> Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Acute Potential Dose: [redacted] mg/day over [redacted] days/yr
Number of workers (all sites) with inhalation exposure: [redacted]
[redacted] (non-volatile non-polyisocyanates). Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years. //// Based [redacted] ess description, RAD assess inhal [redacted] on exposures assuming the [redacted] model. /// Concentration: Cm = [redacted] mg/m3; exposure duration: h = [redacted] hr/day

NOTE: The respirator class is: I. Particulate (including solid or liquid droplets).

INHALATION MONITORING DATA REVIEW

| | | |
|---|---|---|
| 1) | Uncertainty (estimate based on model, regulatory limit, or data not specific to industry): | Yes |
| 2)a) | Exposure level > 1 mg/day? | [redacted] |
| | OR | |
| b) | Hazard Rating for health of 2 or greater? 1-2 | No |

=> Inhalation Monitoring Data Desired? **No**

Dermal:

Exposure to [redacted] concentration
High End:
> Potential Dose Rate: [redacted] mg/day over [redacted] days/yr
> Lifetime Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Average Daily Dose: [redacted] mg/day over [redacted] days/yr
> Acute Potential Dose: [redacted] mg/day over [redacted] days/yr
Number of workers (all sites) with dermal exposure: [redacted]
Basis: [redacted]; EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

[redacted]

[redacted]

CALL BY:

Organization:

CALL TO:

Organization:

Date:

Time:

Phone:

Concerning what?

PMN: 18-0219